Claims

1. A Cartesian loop transmitter (100), comprising a forward path (102) and a feedback path (104), each of these paths comprising an I-channel and a Q-channel, as well as an isolator eliminator (106), characterized in that said transmitter (100) comprising:
   a) a first low pass filter (138) and a first band pass filter (140) connected to I-channel at LP2;
   b) a second low pass filter (142) and a second band pass filter (144) connected to Q-channel at LP2;
   c) a first root mean square detector (146) collecting signal from said first low pass filter (138) and from said second low pass filter (142);
   d) a second root mean square detector (148) collecting signal from said first band pass filter (140) and from said second band pass filter (144);
   e) a divider (150) connected to said first and said second root mean square detectors (146 and 148);
   f) a comparator (152) connected to said divider (150); and to
   g) a microprocessor (154) connected to an input attenuators (108) and (110) on said I- and Q-channels.

2. The Cartesian loop transmitter (100) of claim 1 wherein a memory (156) is connected to said microprocessor (154).

3. A method of adjusting an output level of a Cartesian loop transmitter (100) in a digital radio system, the method comprising the steps of:

a) applying a factory predefined attenuation setting (202) for adjusting said output level if attenuation setting for a previous slot is not available (200) ; or

b) applying said attenuation setting obtained in previous (204) slot for adjusting said output level in a current slot;

c) measuring an on-channel baseband signal level (206) at LP2;

d) measuring a noise level (208) at predefined frequency offset at LP2;

e) calculating a ratio (214) of said noise level to said on-channel baseband signal level; and

f) if said ratio is above a threshold (216), increasing an attenuation setting (218) of an input signal;

g) storing (222) said attenuation setting in a memory.

4. The method according to claim 3 wherein steps c) through g) are repeated in a loop until said ratio is below said threshold.

5. The method according to claim 3 or 4 wherein for determining said ratio a root mean square of said on-channel baseband signal level (210) and a root mean square of said noise level (212) are taken.

6. The method according to any one of claims 3 to 5 wherein after increasing said attenuation setting a delay is applied (220) to execution of software, which based on next samples, calculates said ratio and increases said attenuation setting.

7. The method according to any one of claims 3 to 6, wherein in said step of storing said baseband signal level and said noise level measured at LP2 are stored in said memory.

8. A radio transmitter according to any one of claims 1 to 2 and which is operable to provide communications in at least TETRA and/or GSM and/or IDEN communication systems.

9. A radio communication device incorporating a circuit according to any one of claims 1 to 2.

10. A radio communication device operating in accordance with a method according to any one of claims 3 to 7.